

Serial No.: 10/777,147
Docket No.: 102-1010
Response dated March 23, 2006
Reply to the Final Office Action of December 7, 2005

REMARKS

Introduction

Claims 1-27 are pending in this application. Applicant respectfully requests reconsideration and allowance of these claims for at least the following reasons.

Rejections under 35 U.S.C. §103

Claims 1-6, 11-16, 21 and 22 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,845,177 to Choi (hereinafter “Choi”) in view of U.S. Patent No. 6,571,060 to Moriya et al. (hereinafter “Moriya”). Claims 7-10 and 17-20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Choi and Moriya and further in view of U.S. Patent No. 6,381,432 to Hattori (hereinafter “Hattori”). Claims 23-27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hattori in view of Moriya. This rejection is respectfully traversed for at least the reasons stated below.

Moriya is non-analogous prior art

The Examiner relies on the Moriya in the rejection of claims 1-27. Applicant respectfully traverses this rejection on at least the grounds that Moriya is non-analogous to Applicant’s claimed invention.

In order for a reference to be considered analogous art to be relied on as a basis for rejection of an applicant’s invention under 35 U.S.C. § 103, “the reference must either be in the field of the Applicant’s endeavor or, if not, then [must] be reasonably pertinent to the particular problem with which the inventor was concerned.” *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992); MPEP § 2141.01(a).

It is respectfully submitted that Moriya is clearly a reference outside the field of the inventor’s endeavor. Regarding the inventor’s field of endeavor, Applicant’s claimed invention

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(claims 1-27) is directed to an apparatus to drive a roller used in an electrophotographic printer. See "Field of the Invention," pg. 1, ¶ 2 of the Specification. In contrast, Moriya is directed to "a driving mechanism employed in an optical device such as a still camera or a video camera." See "Field of the Invention," col. 1, lines 15-17. The driving apparatus of Applicant's invention drives rollers, such as a charging roller, according to a rotation of a photoconductive drum. The driving mechanism of Moriya refers to a lens driving mechanism or a focusing mechanism of a camera. See col. 2 lines 43-47. It is respectfully submitted that a person of ordinary skill, seeking to solve a problem in driving rollers in an electrophotographic printer, would not reasonably be expected or motivated to look to driving mechanisms for lenses of a camera. For example, the precision required in rotating a photoconductive drum or other rollers in an electrophotographic printer in order to obtain a high quality printing image could not be accomplished by using rolling members from another technical field, such as the driving mechanism for an optical device in Moriya. Therefore, Moriya is not within the field of Applicant's endeavor. See *In re Oetiker* (holding that fasteners for garments were not in the same field of endeavor as fasteners for a hose clamp because it was not shown that a person of ordinary skill, seeking to solve a problem in fastening a hose clamp, would reasonably be expected and motivated to look to fasteners for garments).

Since, as detailed above, Moriya is not in the field of the inventor's endeavor, Moriya cannot be considered analogous to Applicant's invention unless Moriya is reasonably pertinent to the particular problems with which the inventor is concerned. The problems with which Applicant is concerned generally include, for example, reducing variations in driving motions that result from gear pitch error induced during the manufacturing process. More specifically, Applicant seeks to minimize the effects of gear pitch error by reducing impulse and velocity variations on a roller rotated by a photoconductive drum and reducing variations on inter-axis distance between the roller rotated by the photoconductive drum to prevent quality of images from deteriorating.

Moriya is directed to the problem of reducing noise in a driving mechanism of an optical device. See col. 1 lines 30-47. "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with

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which it deals, logically would have commanded itself to an inventor's attention in considering his problem." Thus, the purposes of both the invention and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve. If a reference disclosure has the same purpose as the claimed invention, the reference can be considered as relating to the same problem, and that fact would support use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. However, if it is directed to a different purpose, the inventor would accordingly have had less motivation to consider it. *In re Clay*.

Moriya specifically states that an object of the invention is to reduce noise generated at a gear meshing portion of a driving mechanism of an optical device. Although FIGS. 4-6 of Moriya illustrate test results for noise reduction of the driving mechanism, and FIG. 4 of Moriya also illustrates test results for a sensory evaluation of noise reduction and durability of gears of the driving mechanism, the test results in FIGS. 4-6 of Moriya do not include any measurements of impulse or velocity variations. In fact, at no point does Moriya teach or suggest minimizing the effect of gear pitch error by reducing impulse and velocity variations on the gears of the driving mechanism. Further, the test results in FIGS. 4-6 of Moriya do not include any measurements of variations of inter-axis distance between rollers, since Moriya does not teach or suggest the use of any rollers in the driving mechanism.

In the Office Action of August 17, 2005 at page 3, the Examiner alleges that a person with ordinary skill would have been motivated to consider Moriya "for at least the purpose of reducing noise caused by the gears." In response to Applicant's remarks of November 17, 2005 addressing this statement, the Examiner further alleges that "to reduce the noise generated by the gears, the amount of vibration is being reduced, which is the same particular problem addressed in the present application." (**Emphasis Added**). See Office Action of December 7, 2005 at page 3.

Again, Applicant's invention is not directed to reducing noise in gears of the driving apparatus, but instead minimizes or eliminates the effects of gear pitch error on the gears on rollers by reducing impulse and velocity variations of a roller rotated by the photoconductive drum and by reducing variations of inter-axis distance between the roller and the

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photoconductive drum. As described above, Moriya is not concerned at all with gear pitch error, reducing impulse and velocity variations of rollers, or reducing variations of inter-axis distance between rollers. Accordingly, Moriya is not reasonably pertinent to the particular problem with which Applicant's invention is concerned.

Applicant further submits that reducing noise between gears in an optical device is quite a different concern than minimizing the effects of gear pitch error by reducing impulse variation and inter-axis distance variation between rollers in a printer. In fact, the problem addressed by Moriya can be present without the problems addressed by the Applicant, and vice versa. Thus, contrary to the Examiner's position in the Final Office Action, the problem addressed by the Applicant and the problem addressed by Moriya are not one and the same.

Furthermore, the Examiner has not provided any evidence that applying Moriya's gear to Choi would necessarily solve the problems with which the Applicant was concerned. The Examiner's position assumes that since Moriya's device reduces noise caused by the meshing of the gears, Moriya's device would necessarily compensate for the effects of gear pitch error by reducing impulse and velocity variations, and by reducing variations in inter-axis distance between the photoconductive drum and the roller. However, the Examiner does not provide any support for this assumption from the references themselves or from the knowledge generally available to one of ordinary skill in the art. Accordingly, Applicant submits that the Examiner's position that the problem addressed in Moriya is the same as the problem addressed by the Applicants is not supported.

In view of the above, it is respectfully submitted that Moriya is non-analogous to Applicant's invention as claimed in claims 1-27. Therefore, Moriya cannot properly be used as a basis for a rejection under 35 U.S.C. § 103. For at least this reason, withdrawal of the rejection of claims 1-27 and allowance of these claims are earnestly solicited.

The Examiner has not established a prima facie case of obviousness

Independent claim 1 recites, *inter alia*, "a material having a lower hardness than the drum gear to absorb impulses due to a pitch error from gear teeth of the drum gear." In an attempt to meet these elements of the claim, the Examiner alleges that "it would have been

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obvious to ... modify Choi's invention by having the first passive roller gear made of a material having a lower hardness than the drum gear to absorb impulses due to a pitch error from gear teeth of the drum gear and the first passive roller gear." See Office Action of August 17, 2005 at page 3. However, the Examiner does not provide any support for this allegation other than the fact that Moriya shows gears having a designated elastic modulus. In fact, Moriya does not even mention gear pitch error or absorbing impulses that result therefrom. Thus, Moriya fails to teach or suggest, among other things, "a material having a lower hardness than the drum gear to absorb impulses due to a pitch error from gear teeth of the drum gear," as recited in independent claim 1 of Applicant's invention.

Independent claim 11 recites, *inter alia*, "such that impulses from pitches between the drum gear and the first passive roller gear are absorbed to prevent velocity variations between the photoconductive drum and the first passive roller at the nip therebetween." With regard to this claim, the Examiner alleges that "it would have been obvious to ... modify Choi's invention by having the first passive roller gear being formed of a material that is softer than the material of the drum gear such that impulse from pitches between the drum gear and the first passive roller gear are absorbed to prevent velocity variations between the photoconductive drum...." See Office Action of August 17, 2005 at page 5. Again, the Examiner does not provide any support for this allegation other than the fact that Moriya shows gears having a designated elastic modulus. In fact, Moriya does not even mention gear pitch error or absorbing impulses that result therefrom. Thus, Moriya fails to teach or suggest, among other things, "impulses from pitches between the drum gear and the first passive roller gear are absorbed to prevent velocity variations between the photoconductive drum and the first passive roller at the nip therebetween," as recited in independent claim 11 of Applicant's invention.

Applicant further submits that the Examiner has not established that Moriya could be combined with Choi with a reasonable expectation of success to "absorb impulses due to pitch error from gear teeth of the drum gear," as recited in independent claim 1; or "such that impulses from pitches between the drum gear and the first passive roller gear are absorbed to prevent velocity variations between the photoconductive drum and the first passive roller at the nip therebetween," as recited in independent claim 11. A reasonable expectation of success

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must be found in the prior art, not the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). Since neither Moriya nor Choi suggest that the references can be combined to absorb impulses due to pitch error and to prevent velocity variations between the photoconductive drum and the first passive roller, the Examiner has not established that Moriya and Choi can be combined with a reasonable expectation of success.

Finally, Applicant submits that the Examiner has not provided a legally proper motivation to combine Moriya and Choi. Moriya shows an optical device, such as a video or still camera, including gears that move a projection lens. See FIG. 1 and col. 1, lines 23-25. On the other hand, Choi discloses an electrophotographic image forming apparatus having gears that move rollers. Applicant submits that the optical device shown in Moriya is entirely different from the electrophotographic image forming apparatus shown in Choi, and the fact that these two devices both have gears does not itself provide a motivation to combine Moriya and Choi. Thus, it is clear that the Examiner is relying on impermissible hindsight reasoning gleaned from the Applicant's disclosure. Accordingly, Applicant submits that the Examiner has not provided a proper suggestion or motivation to combine Moriya and Choi.

...To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

Applicants respectfully submit that since: 1) the Examiner has not shown that Moriya in combination with Choi teach or suggest the features of claims 1 and 11; 2) the Examiner also has not provided a proper motivation to combine Moriya and Choi; and 3) the Examiner has not established a reasonable expectation of success, the Examiner therefore has not provided a sufficient factual basis to support a *prima facie* case of obviousness. Accordingly, the §103(a) rejection of claims 1-6, 11-16, 21, and 22 is improper, and withdrawal of this rejection is respectfully requested.

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Conclusion

It is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, there being no other objections or rejections, this application is in condition for allowance, and a notice to this effect is earnestly solicited.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below.

A one-month extension of time has been incurred by this Response. If any further fees are required in connection with the filing of this amendment, please charge the same to our Deposit Account No. 502827.

Respectfully submitted,

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